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A GEOLOGICAL SURVEY OF KANSAS.

BY B. F. MUDGE.

We have an area of territory ten times as large as Massachusetts (78,000 square miles) much of it only yet visited by the hunter, and the geological character of even the settled portions but little understood.

Enough coal exists, at least for a home supply for ordinary domestic heating purposes. But even when valuable for generating heat, how much is known in relation to its worth for making gas, smelting iron ore, or for the common uses of blacksmithing?

We have, if we believe the newspapers, plenty of magnesian limestone in all parts of the state; but who knows how much or how little of it has any magnesia in it, or whether it has any of those properties which make true magnesian limestone available for hydraulic or Roman cement? We have, on the same authority, plenty of slate; but how many know if it is the genuine article? We might go on asking the same questions about a dozen other products found, or said to be found, in our state.

Much time and money are being expended in the useless search for metals, when only two—iron and lead—can by any possibility be found in the state, and those in a narrow area, where the chances are very strongly against us. We have coal in half the counties of the state, but a considerable portion is utterly worthless. Much is frequently worked and carried to some adjoining market, only to disappoint both the miner and purchaser. At the same time our best coal seam, which would be counted good in Pennsylvania, is little worked and less known, than the inferior article. We hear of constant expenditures in boring and digging for coal, where a geologist could easily decide that no coal could be found. Enough has been spent in half a dozen Kansas cities, ignorantly and uselessly searching for coal, to pay for a full, economical and scientific survey of the state. We cite one example for illustration: A city with more enterprise than confidence in geology, though frequently advised by me that no paying coal lay within one thousand feet of the surface, commenced the search, boasting through the press that the proceeding was “contrary to all principles of science,” and “against the advice of one of the best geologists in Kansas,” adding, “but we have got the coal.” After boring three hundred feet, and striking dark shale, a shaft was opened at an expense of over \$25,000, only to find a black, worthless substance, which was not coal, and would

not burn. Council Grove is not the only place in Kansas that has spent capital to bore for coal "contrary to all the principles of geological science." A few such expenditures as the above would be all the most extravagant geologist would require for a full, scientific survey of the entire state.

Other articles beside coal, require investigation. Our gypsum is abundant and valuable, but almost unknown to our citizens. Salt is found in large quantities, but only the small deposits of weakest brines are yet worked, while this valuable article is brought a thousand miles to our market. We should, instead, be sending our very superior salt to all the neighboring states.

Nor should the scientific aspect of the survey be overlooked. We have a flora in many respects unlike the more easterly portions of our country. We want a knowledge of our insects as well for science as the farmers. The chemical analysis of our soils and building materials and few minerals, is equally important to all. Our fauna is peculiar, and some of it rapidly disappearing. We have some geological formations (Permian, for instance) little represented in the United States; and others so rich in new forms of ancient life, that Eastern colleges and institutions are procuring them by tons, and we, in future, may be obliged for our collections to glean from their leavings. Kansas has probably presented to science, during the past eight years, more new species of fossils than any other state in the Union. And this only by the unaided labors of private enterprise. Much more could be done by a little State aid, and the specimens and credit preserved for Kansas. We should not be behind other states in this respect. Not only are Missouri and Iowa leading us in this matter, but many of the southern states have organized, or are organizing, their geological surveys. We should not be less enterprising. We cannot promise the discovery of any precious metals as the result, yet a knowledge of the mineral contents of our strata will richly repay the small cost necessary. No better advertisement can be made to draw immigration, than a geological report. A true knowledge of the geological character of Kansas should be sent abroad. While writing this article, an official document from the national land department at Washington comes to me with a most gross misstatement of our coal fields. Such errors should be corrected by official reports from home. Nothing would so economically prevent the useless waste of time and money in search of possible products of the soil. The saving to the people at large would, in this respect, be ten-fold, and from the pockets of those who can ill afford the expense.